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ABSTRACT

A review of current theory and research related to writing ability leads to the conclusion that there is no existing test, instrument, or set of procedures which will provide valid data regarding the writing abilities of individuals. As an alternative approach, a textual cognition model of written communicative competence is proposed and elaborated. Arising out of the Trent Valley Project of the Ontario Institute for the Study of Education, the model is operationalized through an extension of the cloze procedure from reading to writing. The underlying assumptions are that written communicative competence implies that a student's writing will make sense for an intended or relevant audience and that, in turn, the cloze procedure will provide a valid measure of the extent to which the writing does make sense to that audience. On the basis of preliminary investigations, a taxonomy of impediments to successful written communication is developed for problems at the graphic, syntactic, lexical, and contextual levels. Questions remaining to be answered about the textual cognition model and the associated cloze procedure are listed. (AA)

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Assessing Written Communicative Competence: A Textual Cognition Model

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The Ontario Institute for Studies in Education

1977

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Assessing Written Communicative Competence: A Textual Cognition Model

In his 1974 book, Measuring Growth in English, Paul Diederich notes that he is unable to envision a criterion-referenced test of writing ability. It is a noteworthy observation, one likely to be repeated by many test developers for some time to come.

The attempt adequately to assess writing and writing ability by way of comprehensive lists of specific objectives and accompanying test items is an enterprise fraught with difficulty and uncertainty. For one, the criteria of "good" writing have never been isolated in any enduring sense. Indeed, one noted critic, M. H. Abrams (1953), has concluded that the criteria shift over time, particularly with respect to factors of social stability and ferment.

Paul Diederich himself found in a study conducted for the American College Entrance Examination Board (CEEB) that, when duplicated, read and marked by many readers, virtually any writing sample will receive virtually any evaluation--from superior to

failing. His study revealed that the evaluators held essentially competing conceptions of "good" writing, conceptions which included: quality of ideas, organization, style, spelling, and mechanics. Though revealing in its own right, such vacillation among judgments entails a nightmare of erratic decimal places for the enterprising test developer who must be concerned about such important matters as test reliability and validity.

In short, any authentic assessment of writing ability must first cope with enormous problems entailed by the absence of an abiding, lawful account of writing as an objective phenomenon. For the testmaker, it is an issue of construct validity in the absence of a construct, an issue which quickly raises questions of evidence and documentation: What shall the testmaker be valid and reliable about? What's worth counting?

As a form of testing, criterion-referencing involves still other problems of documentation, some of them astounding in the extent to which superficially straightforward items can readily and rapidly disintegrate into a maze of psychometric bewilderment. Consider the plight of the ingenuous criterion-referencer who decides to que. the simple matter of writers' placing commas regularly and appropriately after introductory

subordinate clauses and phrases. Having decided to examine the real thing--actual writing samples--the testmaker quickly discovers:

(a) no guarantee that introductory subordinate clauses and phrases will appear five times in a fixed-length writing sample for purposes of determining with reliability the regularity of the writers' use of said comma; and

(b) the disturbing probability that not all said commas are qualitatively the same, that such variables as complexity of syntax, as well as the writing task in question and the mode of the writing need to be taken into account.

Finding no apparent method by which to assess the comma from writing samples, our criterion-referencer moves on to second best--set test passages requiring the test taker to edit for said comma and other items as well, perhaps in a multiple-choice format. Pursuing this tack, the testmaker soon discovers:

(a) an uncertain relationship between editing for commas and regularly using them when writing;

(b) a very uncertain relationship between editing for commas in someone else's writing (i.e., the test passages), and proofreading one's own writing; and most important

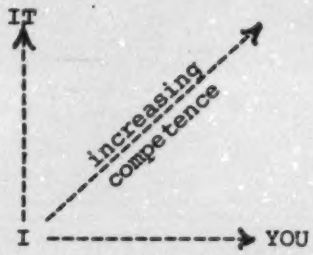
(c) strong suggestions that the entire difficulty with such efforts to assess said comma have less to do with psychometric requirements involving the need for five equivalent opportunities to look after said comma, and more with the lack of an empirically corroborated account of the entire phenomenon of writing from which to begin test development.

The testmaker is essentially left with the question, "Why do we punctuate anyway?" and has, in short, been stymied by a comma.

What accounts have been given to writing as writing, particularly the process of learning to write and its instruction? Though numerous and complex, such accounts cluster essentially about two paradigms: a 'writer school' and a 'text school.' Representatives of the 'writer school,' including James Moffett (1965, 1966, 1967, 1968a, and 1968b), James Britton (1967, 1971, 1975, and 1977), and Janet Emig (1971), assume that an understanding of writing as writing must begin with an examination of the writer and the nature of language, not the text. Moffett's treatise, Teaching the Universe of Discourse (1968a), is one of the keystones of English education, both in its substance and the scope of its scholarship. By way of a philosophical tradition involving Suzanne Langer, and extending ultimately through Ernst Cassirer back to Immanual Kant, Moffett incorporates many of the principles

of developmental cognitive psychology into a revolutionary framework which astutely and persuasively transforms compostion as a pedagogical concept from noun to verb, from subject for study (as in "Rhetoric") to symbolic, communicative behavior. Writing is conceived as behavior involving relations between writer and topic, as well as between writer and audience. Schematically, Moffett's conception of maturing competence in writing can be represented as follows:

FIGURE ONE.



Britton shares many of Moffett's assumptions. In terms of scholarship, his work is noted for the depth to which he probes the philosophical roots of the Langer tradition, as well as for his examination of the contributions of psychology (particularly the personal construct theory of George Kelly [1955]) to an understanding of the writing process. Perhaps Britton's seminal contribution is his exploration and clarification of the fundamental

role of expressive language in the writing process and its development. While language for Britton, as for Moffett, is the symbolic embodiment of events, its development is said to be most complete when adequate allowance is made for talk in a context of social neutrality; talk "close to the self"; "unstructured," easy conversation; "loaded commentary on the world"--in short, the expressive. For Britton, such talk is the generative foundation of (a) structured language that gets things done (transactional language; e.g., the business memo or the explanation), and (b) language given artful form (poetic language; e.g., fiction and poetry). Schematically, Britton's concept of language functions is as follows:

FIGURE TWO.

TRANSACTIONAL <-------- EXPRESSIVE ---------> POETIC

Focus on the writer is apparent, too, in Emig's The Composing Processes of Twelfth Graders (1971). Emig supports Britton's postulation of the expressive, and she finds its bifurcation in the concepts reflexive and extensive:

FIGURE THREE.

Reflexive writing is essentially contemplative; extensive writing is essentially communicative. There are obvious and important similarities between Emig's reflexive and extensive, and Britton's poetic and transactional, not the least of which is common ground in the expressive, as well as bifurcation along lines of the writer's relationship to the field of discourse. Emig follows Moffett in recasting writing as a curricular concept from noun to verb; and in her choice of the term "composing" (as opposed to "composition," as in what's-due-in-English-class-on-Friday), she effectively stresses the artful, skillful, and personal aspects of the enterprise.

The essence of Emig's interests, though, is perhaps captured most completely by her choice of case study as a research methodology. To investigate the composing process, she asked eight twelfth graders to talk out their compositions as they wrote them. In so doing, she not only took advantage of a well-established research methodology (albeit one never used to

investigate language matters) to investigate with some rigor very uncharted territory; she effectively underscores by her method of investigation the seminal role of the writer in writing. Emig essentially reminds her readers that the text of a composition is far more than just so much print. To understand writing as writing, as well as to play a positive role in its development, Emig emphasizes the need for the teacher to conceptualize the text properly within the context of the composing act itself. The text is but an important consequence of this fundamental process, and it is mistreated, because misconceived, when it is red-marked into a cause célèbre of neglected amenities.

By contrast, representatives of the 'text school,' including Kellogg Hunt (1964, 1965), Roy O'Donnell et al (1967), John Mellon (1969), and Frank O'Hare (1973), assume that the appropriate locus of instructional intervention is the text. Attempts to account for the writer as writer are conspicuously absent, though the origins of the approach are attributed to Noam Chomsky's theory of syntax (1957). Citing Chomsky, Hunt first proposed mean T-unit length in (1964) as a valid measure of syntactic maturity. An abbreviation for "minimal terminable unit," a "T-unit" is an independent clause with all of its subordinate clauses and modifying phrases. Hunt found sequential

increments in mean T-unit length when he compared the writing of older students with that of younger children. Mellon and O'Hare followed with the development of a classroom pedagogy of sentence-combining exercises which were found to increase syntactic maturity (i.e., T-unit length) significantly beyond what might be expected from normal development. Most recently somewhat extravagant claims have been advanced that sentence-combining effectively enhances cognitive development (Strong, 1976).

To what extent are the above accounts of writing as writing adequate for the purposes of ability testing? To what extent is writing understood as an objective phenomenon? In a final analysis, it is difficult to disagree with Emig's acknowlegment of Hunt's (1965) characterization of our knowledge as essentially 'alchemic' (Emig, 1971, p. 5). Philosopher Karl Popper's (1959) principle of falsifiability as the criterion of demarcation between metaphysics and science perhaps underscores the chief distinction to be made in this regard. According to Popper, the conditions of science as an enterprise require the possibility of refutation by experience. Furthermore, while successive theories are distinguished by their increasing abstractness (i.e., their powers adequately to subsume increasingly more events), theories which are aimed too high (i.e., too high too soon given existing frameworks) give

rise to metaphysical, rather than scientific systems. A particular system of thought may possess a ring of plausibility, but without the possibility of a crucial experiment to test it, i.e., without the possibility of refutation in experience, the system remains speculative, not empirically borne out as lawful. Such a distinction, of course, does not in any way denigrate metaphysics as an enterprise in its own right.

Tenets of the 'writer school' may, for the most part, be characterized as fertilely metaphysical and richly speculative, but nonetheless metaphysical. Moffett, for his part, explicitly disclaims scientific evidence as a foundation for his Student-Centered Language Arts Curriculum, K-13 (1968b), confessing "both my ignorance and that of the whole profession" (p. 29). Britton et al recently completed an empirical study of The Development of Writing Abilities: 11-18 (1975), providing a valuable description of types of classroom writing across the curriculum in London, as well as an elaboration of his categories. With the possible exception of clarification of the required conditions for expressive writing, however, the study did not confirm any hypotheses about writing as writing. Of Emig's (1971) four summary hypotheses, only one is genuinely falsifiable (#4. *For twelfth-grade writers extensive writing occurs chiefly as a school-sponsored activity; reflexive, as a self-sponsored*

activity), though it may be possible yet to put other aspects of her work to the test.

Increases in T-unit length over age is, of course, an empirical finding, though clarification of what has been found is perhaps in order. First, the increases described by Hunt (1964, 1965) and O'Donnell et al (1967) are based on analyses of mean T-unit length for samples of students; in effect they are age-related norms. Also, the studies are cross-sectional. The problems in using cross-sectional data from group studies to comment on individual development have been discussed by Wohlwill (1973) and demonstrated by Schaie and Labouvie-Vief (1974). With specific reference to T-unit differentials, Harold Rosen of the University of London has shown that individual writers who write well exhibit greater variation in T-unit length across language functions than across age (1969). Furthermore, the contention that sentence-combining as a pedagogy produces growth significantly beyond what might be expected normally reflects a confusion of norms with goals. In effect, this conflation serves ironically to convert the competence model of Chomsky's theory of syntax into a performance model; "can do" becomes "will do more regularly." While Hunt's original identification of the T-unit as a measure of syntactic maturity may be valid, instructional interventions

which deliberately promote longer and longer T-units, producing "gains beyond the expectations of normal development," are misfounded, and potentially lead to categorical preferences for styles closer to that of Henry James than of Ernest Hemingway, all in the name of "maturity." It is in this final absurdity that the account breaks down; while normative increases in T-unit length may be predicted and confirmed in large scale empirical studies, equating individual competence or ability with normative performance of the group--and then some--does not follow logically.

In short, writing ability as an empirical construct has no established validity, and there is currently no existing test, instrument, or set of procedures which will provide authentic data regarding the writing abilities of individuals. Compared to a protozoan-like knowledge of writing as writing, currently available methods of assessment are barely amoebic.

The following model, called Textual Cognition, is a proposed account of written communicative competence. Although it has undergone some initial investigation and development, it should be regarded as pre-experimental, but nonetheless open to empirical investigation. Its greatest importance at its current stage of development may reside in its highlighting of cloze as a fertile and flexible technique for assessing

aspects of language besides reading. Essentially, the ultimate objectives of a textual cognition approach are to meet the criteria of ontological assessment:

(a) foundation in an empirically lawful account of writing as a phenomenon; and

(b) capability of generating educationally useful data.

While efforts to derive a viable criterion-referenced approach to writing assessment floundered from the very start of the Trent Valley Project, we spent some time early on pursuing what for us was a novel use of the T-unit. We speculated (not knowing Rosen's [1969] research) that if good adolescent writers were to write on the same topic for two distinctly different age groups (e.g., "The Meaning of Christmas," once for adults and once for seven-year-olds), one aspect of their success and ability might be measured by a suitable <u>differential</u> in mean T-unit length, in essence a measure of their awareness of their readers' needs. After deciding that such a columnist as Russell Baker might just win a Pulitzer Prize while proving us wrong, but also while reasoning that successful communication to a child involves special restrictions on the writer, we were forced to give up this use of the T-unit. We were particularly unsuccessful in specifying appropriate differentials.

For some time thereafter we made little progress on writing assessment, though reading assessment seemed to move forward as we investigated the use of cloze to assess comprehension. In the throes of these considerations (about March of 1976), we struck upon the possibility of using cloze to assess writing. Taylor in (1953) had originally researched the use of cloze to measure readability with a given group of readers. We reasoned that cloze might be used as an empirical measure of success in written communication <u>providing the relevant readers were identified either by or for the writer before writing</u>. Accordingly, we hypothesized that the cloze scores of the actual audience might be taken as a measure of the success of the writer in making sense for the intended readership. Happily, we found theoretical support in Moffett's (1965) concept of the "I-->YOU" dimension, and in Britton's (1975) concept of audience categories.

In March of 1976, Mrs. Jean Laidlaw of Lennox and Addington suggested what were to become our audience categories, and the following was formally committed to paper:

<u>Proposed Construct</u>

Competence in written communication requires awareness on the part of the writer, as reflected in performance, of the needs of the reader to make sense of the written text. While these semantic needs will have syntactic, graphemic, morphemic, and discourse-related components, the test of the writer's competence is to be found in the extent to which intended and relevant readers are

able to ascertain intended relations between and among words and sentences in the discourse. Writers will succeed or fail in writing tasks significantly to the extent that they control shared, relevant terms of expression (rules of use).

Objective

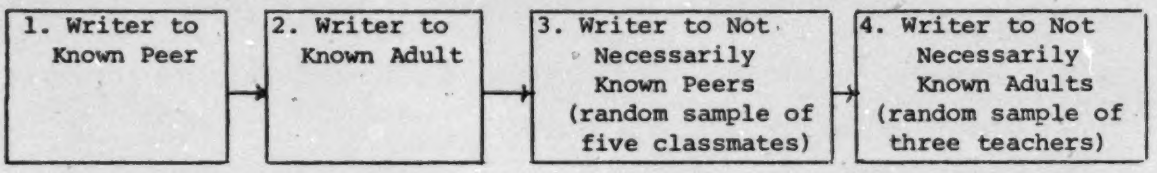
In written communication (informational prose), student will make sense for an intended or relevant audience.

Procedure for Assessment (Suggested)

Given a 150 word sample of informational prose with the audience specified, the clozed sample will be found readable at a level of .50 or better (?) for the relevant audience.

The sample may be taken at random from the writing folder, or may be elicited in a controlled setting.

The audience domains are:


1. Writer to Known Peer
2. Writer to Known Adult
3. Writer to Not Necessarily Known Peers (random sample of five classmates)
4. Writer to Not Necessarily Known Adults (random sample of three teachers)

That same March, Mr. Frank DiNoble and members of his staff in Leeds and Grenville assisted in informal and encouraging probes of the technique when eighth grade writing samples from POCED testing in that county were clozed and read by duly authentic not-necessarily-known adults as specified in the original Leeds and Grenville request for writing samples.

In November, ten adults from four boards gathered at the Trent Valley Centre to work twelve clozed writing samples, all by eighth graders, and all from the March POCED testing program.

All writing samples were clozed and typed in an end-of-the-line format. The following two forms are representative. The first is a writing sample clozed; the second is the sample in its entirety with discrepant reader guesses in parentheses at the right.

TOPIC: Does the Government Have the Right to Impose Laws on Us for Our Own Protection?

Yes, I _____	think
that the laws are _____.	okay
The people that puts _____	out
the laws are doing it _____	for
us to help us, _____	not
to hurt us. The seat _____	belt
law, since they made us _____	use
it my sister _____	said
that there isn't so _____	many
head injuries on U-2 _____	where
she is nursing. And the _____	laws
hasn't come out yet _____	about
death penalty but I _____	think
they should, because I _____	think
there won't be so _____	much
crime. I also think the _____	OPP's
could be harder on the _____	people
that steal, kill and _____.	rapes
And the law for _____	going
over 60 on the _____	401
that is to _____	help
us to save _____.	gas
But I am just _____	one
person with my _____	ideas
and it might be _____	different
then my friends, family and _____	maybe
you judges. I belive _____	in
all laws, some even _____	sounds
crazy but, what there _____	doing
is for us.	

(FOLD BACK HERE)

Adult Responses to Clozed Writing Sample

Yes, I think
that the laws are okay. (2 good; right; 3 alright)
The people that puts out (3 down; 2 on; together; forth)
the laws are doing it for (3 to)
us to help us, not
to hurt us. The seat belt
law, since they made us use (6 wear; okay; do)
it my sister said (4 says; knows; feels)
that there isn't so many
head injuries on U-2 where (because)
she is nursing. And the laws (6 law; decision; government; police)
hasn't come out yet about (against; on; 2 for; ------)
death penalty but I think
they should, because I think (know)
there won't be so much (many)
crime. I also think the OPP's (police; 4 law; 3 laws; courts)
could be harder on the people (criminals; kids)
that steal, kill and rapes. (------; 6 rape; 2 rob; speed)
And the law for going (3 driving; speed; 4 speeding)
over 60 on the 401 (6 highway; highways; ---------)
that is to help (2 make)
us to save gas. (4 lives; ourselves; money)
But I am just one
person with my ideas (10 opinions)
and it might be different (that; wrong; alright; better)
than my friends, family and maybe (teachers; others; also; police;
you judges. I belive in (5 that) ale; even)
all laws, some even sounds (4 are; slightly; so; maybe; 2 is;
crazy but, what there doing 2 are; for)
is for us.

Our main effort, after scoring for readability, was to account for discrepancies between the writers' original words and the readers' wrong guesses. To account for these discrepancies, it was posited that individual writers' tasks in communicating successfully involve adequately constraining the readers, i.e., sharply delimiting the predictions they are likely to confirm in reading. This single assumption suggested the following taxonomy

of relevant written constraints:

(a) graphic constraints, which include the formation of letters and words, as well as rules-of-use regarding spacing. To constrain a reader graphically should not be taken to suggest an aesthetic and/or decorative handwriting, but is intended more to suggest the extent to which handwriting is a subsidiary, not a focal element of the text (Polanyi, 1958). Misspellings normally are not significant impediments to communication;

(b) syntactic constraints, which include factors which affect readers' abilities to reduce their uncertainties regarding a text with respct to sentence structure. While a confusion of homonyms (e.g., your for you're), or the omission of certain marks of punctuation (e.g., the comma in By the time we had finished our dinner was ready.) will "misconstrain" the reader specifically in terms of syntax, such non-standard usages as He done it or between you and I normally are not impediments to written communication. Usage in the sense of traditional textbooks of rhetoric is not often a significant communicative factor;

(c) semantic and lexical constraints, which include the extent to which particular words within sentences are meaningful to the readers involved. Words labeled "jargon" are often matters of inadequate semantic constraint, or semantic "misconstraint" on the part of the writer. For those who are not part of the readership of this paper, for example, the expression "graphic

constraint" is without question jargon, a mystifying and obscure term for handwriting. Hopefully such is not the case for this author's intended readers; the intention here hopefully coincides with the readers' ascribed meanings; and

(d) contextual constraints, which refer to general elements of setting for the writing, including such factors as format, mode and title, as well as all of the above aspects of the discourse which are not specific to the sentence in question.

Another list (called misconstraints) then followed as the discrepancies were identified and simultaneously classified taxonomically from the writing samples. Attempts (not always successful) were made to state all categories and classifications according to a criterion of empirical falsifiability. No testing was in fact conducted. The taxonomy as presented here is a matter of record; it has since become necessary to revise the account by introducing additional assumptions.

Initially Proposed Taxonomy of Possible Misconstraints
(as of 10 November 1976)

II Syntactic misconstraints: factors in written communication which affect readers' abilities to reduce uncertainty regarding a text with respect to sentence structure.

a. spurious: misleading or ineffectual cueing systems resulting in ambiguity or impasse on the part of the reader. Including:

homonyms: *Your* _____ *going to get where you're going with a seat belt on.* (*still*)

punctuation: *By the time we had _____ our dinner was ready. (finished)*

b. preemptive: an overriding of redundancy caused by dysfunction of function words.

I do not think that the government has the right to impose laws for our own safety. The (majority) of us Canadians should _____ up to us within a certain extent. (safety); (be)

The determiner "The" (start of second sentence) is in this case dysfunctional in the sense that it functions to override the redundancy of "safety" (repeated in the second sentence.)

c. impacting: high syntactic density caused by the clustering of identical syntactic units; information overload resulting from "impacting" adverb on adverb; preposition on preposition, noun on noun, etc.

The people who wore seatbelts before the law was enacted are still (_____) the only people who wear them now. (probably)

Note of interest: The following is not a syntactic misconstraint:

Canadians are very upset at the number of people who have ben killed or (are) badly injured. (very)

Are and very are entirely plausible syntactic choices and do not alter the meaning of either possible sentence substantially.

III Semantic-lexical misconstraints

a. exclusional: use of words and expressions which are mistakenly assumed to be common currency to readership.

The law {on / controlling / for} drinking is for your own safety . . . . (against)

The writer is assuming an audience of peers exclusively; s/he neglects that not everyone is prohibited by law from drinking. The specific readership has been excluded.

IV Contextual misconstraints: discourse-related factors of the textual setting.

a. interpositional: unanticipated intrusion into a predicted linearity of discourse.

The people in the back hit the front seat and what do you know some of the people have broken noses.

b. irreplete or abortive: rarefaction of cueing systems resulting in information loss (the opposite of impaction).

This (_____) law is for our protection. Let's say you are driving along and a dog runs across the road in front of you. . . . The people in the front are going to to through the windshield or dashboard. (seat belt)

The Government always has good in mind but it often inforces laws that don't please a lot of people. For instance the (driver) legislations; Canadians are very upset at the number of people who have been killed or very badly injured because of the seatbelts. Also the laws have been changed too many times . . . . (seatbelt)

c. disjunctive: unprepared shift in an expected, predicted linearity.

(paragraph on seat belts) . . . I think that the _____ will get used to these new laws, and people will see the laws the government put out are for our protection. (snowmobilers)

d. antecedal: miscue resulting from a prior semantic, lexical ambiguity.

I think the law did have our good in mind when they inforced speed limit laws, and raised the drinking and smoking ages. They (_____) that the laws would decrease the number of teenage smokers . . . . (felt)

e. classificatory: discrepant classificatory systems.

They felt that the laws would reduce the number of teenage (drivers), teenage drinkers, and teenage (smokers). (smokers)(accidents)

f. abortive modulate: unpredicted shift in an anticipated linearity, which detracts from the reader's sense of reliability with respect to predictability within the discourse in question.

Paragraph develops idea that legislators do not always consider the full implications of their propositions before passing them. Paragraph concludes as follows:

. . . Canadians are very upset at the number of people who have been killed or very badly injured because of seatbelts. Also, the laws have been (ignored) too many times, from all (passengers), to no belts for children, to no shoulder belts if they are not connected. I find it very sickening. (changed); (belts)

g. disjunctive modulate: unpredicted variation in an anticipated linearity of discourse.

Paragraph development concerns speed limits followed by teenage drinking:

. . . The law against drinking is for our own safety but there are likely more drunks under age than there are lawfully. Laws about the driving age are (also) for our safety so that there would not be so many . . . inexperienced drivers. (made)

Subsequent considerations of the above taxonomy have suggested that, while useful, the concept "misconstraint" is inadequate as a generic account for all discrepancies encountered. In particular, those misconstraints labeled impaction and rarefaction do not seem to be "misconstraints," if the term misconstraint is taken to suggest "being lead astray," or "allowed to stray." When readers draw blanks, for example, a more plausible explanation is that they have been inadequately or overly constrained, not misconstrained.

Such considerations suggest an account of writing ability as a sense of textual space on the part of the writer. Such considerations also suggest an account of the text as a set of figure and ground relationships with respect to the page. Writing ability in these terms may be thought of as textual cognition, an awareness on the part of the writer (in Emig's sense, the composer) that a stage is being set, a perceptual space prepared; and that, like the playwright, the composer probably will not be present when the audience attends.

In many respects, the demands of textual cognition are analogous to those implicit in the photographer's task. If, as a photographer, I choose to show you the constellation Orion, for example, I fail by showing you the entire Milky Way (FIGURE FOUR). I also miss by showing you only two stars from the constellation itself (FIGURE FIVE). I succeed only when I frame the relevant stars (FIGURE SIX), and I succeed precisely because I have attended to *com-position*, allowing you by constraining you to form a meaningful image. I have shown you Orion, largely because you can see Orion.

Choosing-to show-you-Orion may in many respects be taken to define the generic task of the writer, too, and an adequate account of writing as writing must come to analytic grips with (a) the writer (choosing to show you Orion),

FIGURE FOUR. The Milky Way

FIGURE FIVE. Two Stars from the Constellation Orion

FIGURE SIX. The Contellation Orion

(b) language functions (e.g., showing you Orion), (c) the reader (showing you Orion), and (d) the topic (showing you Orion).

This Project's explorations currently suggest at least three basic, possible impediments to written communication. These impediments are here defined as distortions of textual space:

(a) misconstraint, or cueing systems which lead to confirmation of aberrant predictions;

(b) impaction, or a dense compounding of cueing systems resulting in readers' inabilities to discern significant differences and regularities for purposes of prediction (information overload); and

(c) rarefaction, or inadequate presence of relevant cueing systems, resulting in readers' inabilities adequately to confirm predictions.

These distortions of textual space are possible on four levels: the graphic, the syntactic, the lexical, and the contextual. The graphic representation on any page is essentially a matter of figure and ground relationships, meaning that what is left unmarked, as well as the spacing between words, strokes, and letters, is as important as those strokes of ink that are left inscribed. When graphic representations fail to establish figure

and ground relationships, the native reader's criticism is usually directed at a "poor handwriting" or an "unreadable script." An analysis of unsuccessful scripts reveals the three basic distortions:

I.A. graphic misconstraint: now here for nowhere; or
(compliments of the researcher's father)
PONY STAL for P. O. Nystrand.

I.B. graphic impaction: A for let.

I.C. graphic rarefaction: n o w h e r e

While the traditional defintion of the sentence as a unit expressing a complete thought is rough hewn to say the least (Is the number of ideas in Macbeth equal to the number of complete sentences in the script?), there is a sense of completeness or closure about the subject-predicate unit known intuitively to any fluent writer. This aspect of textual space can also be distorted in the three basic ways:

II.A. syntactic misconstraint: presence of cues which, for the readership, generate syntactic predictions which cannot be confirmed on syntactic grounds alone. A confusion of homonyms (e.g., your and you're; their, there, and they're) is an example: your signals a noun phrase to follow, while you're indicates a verbal.

II.B. syntactic impaction: high syntactic density resulting from the clustering (multiple embeddings) of kernels, and causing readers' inabilities to predict. Consider the following sentence:

> *In sum, we are dealing with a set of schemata whose dual nature stems from the fact that, whereas their structuring presupposes formal reasoning, they also derive from the most general characteristics of the structures from which this same formal thought arises.* (Inhelder and Piaget, 1958, p. 106)

II.C. syntactic rarefaction: Inadequate presence of relevant syntactic unit(s) resulting in readers' inabilities adequately to confirm predictions, as in the sequence *When I stopped pandering temporarily* with no further context.

Words have their meanings in their uses and their potential uses. Words have meaning to the extent that they are "combinable" or "relatable" by native speakers. Lexical distortions of textual space are possible as follows:

III.A. lexical misconstraint: literally the "wrong word." Consider the following example: *The law* {*for* / ~~*on*~~ *controlling*} *drinking is for your own safety . . .* (*against*). The writer is writing for an audience of adults, yet is assuming an audience of peers exclusively: she neglects or forgets that not everyone is prohibited

by law from drinking. The specific readership has been excluded.

III.B. lexical impaction: excessive use of words which, for the readership, possess a bewildering number of possible and potential combinations, to the extent that readers are unable to discern significant differences and regularities for purposes of prediction. Consider the following example:

Concepts and the language that infuses and implements them give power and strategy to cognitive activity. (Bruner, cited in Rosen [1967]).

III.C. lexical rarefaction: excessive use of words which are obscure in the sense that their non-syntactic relationships and potential relationships with other words are nebulous to the readership, resulting in readers' inabilities to confirm predictions. Jargon to the uninitiated is an example.

Many aspects of written communication are matters of the textual space normally referred to as context, not the text strictly speaking. A love note typed on letterhead stationery has a meaning different from the same message written on perfumed parchment; conversely, notes of transaction inscribed on perfumed parchment have a meaning different from the same on letterhead. Contextual aspects of textual space refer to general

elements of setting for the message, including such factors as format, mode and title, as well as aspects of discourse not specific to the sentence in question. Contextual distortions of textual space include:

IV.A. contextual misconstraint: aspects of the text beyond the sentence in question which generate aberrant predictions within the readership in question. For example:

Paragraph on seat belts concludes:

I think that the _____ will get used to these new laws, and people will see the laws the government put out are for our protection. (snowmobilers)

IV.B. contextual impaction: insufficient context, i.e., an inadequacy of text beyond the sentence in question resulting in stymied readers, unable effectively to discern significant differences and regularities for purposes of prediction. For example:

Paragraph development concerns speed limits, followed by comments on teenage drinking. Concludes:

. . . The law against drinking is for our own safety but, there are likely more drunks under age than there are lawfully. Laws about the driving age are (also) for our safety so that there would not be so many . . . inexperienced drivers. (made)

IV.C. contextual rarefaction: absence of an expected

order* with respect to an established linearity of text beyond the sentence in question, resulting in readers' inabilities to confirm predictions. For example:

> *This (_____) law is for our protection. Let's say you are driving along and a dog runs across the road in front of you. . . . The people in front are going to go through the windshield or dashboard. (seatbelt)*

All of the above distortion types are summarized in the typology presented on Page 32.

In conclusion, a fully developed textual cognition model utilizing cloze seems to be a promising avenue of research and evaluation for written communicative competence. Before such objectives can be achieved, however, several research questions need answers:

1. What empirical evidence can be presented to corroborate the validity of the proposed construct?
2. How are cloze scores from writing samples to be interpreted? Is a high score categorically superior to a low? It is probable that a very high score might be indicative of a very poor piece of writing in the sense of being overly redundant.
3. For the purposes of assessment, what are the comparative

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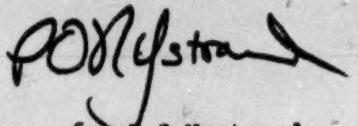
* The French philosopher Henri Bergson defines chaos as "the absence of an expected order" (Évolution créatrice).

merits of various selective deletion strategies, and the traditional every-fifth-word deletion strategy?

4. What are the lower age limits of the method's usefulness?
5. What can be said about the validities and reliabilities of the proposed audience categories?

These are essential questions regarding the assessment of written communicative competence which the Trent Valley Project, for lack of time and resources, was unable to investigate.

TYPOLOGY OF TEXTUAL SPACE DISTORTIONS

Level of Analysis	Distortion Type: A. MISCONSTRAINT	B. IMPACTION	C. RAREFACTION
I. GRAPHIC	I.A. graphic misconstraint  for P O Nystrand	I.B. graphic impaction for "let"	I.C. graphic rarefaction N O W H E R E
II. SYNTACTIC	II.A. syntactic misconstraint *Your _____ going to get where your _____ with a seat belt on. (still) (going)*	II.B. syntactic impaction *The people who wore seat belts before the law was enacted are still _____ the only people who wear them now. (probably)*	II.C. syntactic rarefaction *when I stopped pandering temporarily*
III. LEXICAL	III.A. lexical misconstraint [*The law* {*controlling* / *for*} *drinking is for your own safety (against)*] written to adults	III.B. lexical impaction [*Concepts and the language that infuses and implements them give power and strategy to cognitive activity*] to most people.	III.C. lexical rarefaction (use of jargon with the uninitiated)
IV. CONTEXTUAL	IV.A. contextual misconstraint *Paragraph on seatbelts:* *I think that the _____ will get used to these new laws, and people will see the laws the government put out are for our protection. (snowmobilers)*	IV.B. contextual impaction For most people: [*Epoché is the suspension of belief in the ontological characteristics of experienced objects* (Schütz, 1970, p. 317)] for most people.	IV.C. contextual rarefaction *This _____ law is for our protection. Let's say you are driving along and a dog runs across the road in front of you. . . . The people in the front are going to go through the windshield . . . .* (seatbelt)

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